

## **ENVIRONMENTAL ASSESSMENT FOR THE F-16 CRASH RECOVERY ON MORMON MOUNTAIN**

### **1.0 PURPOSE AND NEED FOR ACTION**

- 1.1 Proposed Action: The proposed action would be to remove remnants of the F-16 aircraft, which crashed on Mormon Mountain on August 7, 2000. The proposed action would remove the remaining pieces of aircraft and reclaim the site “to a level as close as possible to the original condition or at least to a condition that is substantially unnoticeable.” (*Interim Management Policy for Lands Under Review, H-8550-1*).
- 1.2 Purpose and Need for Action: The aircraft crash occurred in a Wilderness Study Area designated as Mormon Mountain. Wilderness Policy is to maintain the pristine condition of the area to a level which human development is largely unnoticeable. The purpose of this action is to reclaim the site to an acceptable wilderness level and to protect the natural and human environment from residue from the aircraft. The action is needed to conform with the *Interim Management Policy for Lands Under Review (BLM H-8550-1)*.
- 1.3 The Objectives of the Proposed Action: The objectives of the proposed action are to remove aircraft pieces in a safe manner while minimizing further new disturbances. The proposed action would airlift the pieces to a staging area and then transport them to Nellis Air Force Base.
- 1.4 Scope of Analysis: The scope of this analysis is limited to those actions required to remove the aircraft, reclaim the site, and transport the aircraft to the base. The resource areas discussed in this document are wilderness values, hazardous materials, air quality, special status species, cultural resources, visual resource management, noxious weeds and invasive species, vegetation, and wildlife. Resource areas determined not to be impacted are land use, flood plains, water quality (surface and ground), paleontological values, wetlands, riparian areas, areas of critical environmental concern, wild and scenic rivers, prime or unique farmlands, wild horses and burros, Native American Religious Concerns, environmental justice, livestock grazing, and socioeconomics.

### **2.0 Alternatives Including the Proposed Action**

#### **2.1 Description of Alternatives Including the Proposed Action:**

- 2.1.1 Proposed Action: An F-16 collision occurred on August 7, 2000. The result of the collision was the crash of one aircraft on Mormon Mountain. The coordinates of the crash site are approximately 36° 58.852' N and 114° 30.916' W and 5900' elevation above sea

level. This location is on the northwestern side of the mountain. The aircraft crash site burned throughout the night resulting in only a few large pieces that are left. There are scattered pieces of debris throughout the site. These pieces may require cutting to make them manageable to move to "Tri-Walls" containers for transportation. The aircraft is located in a Wilderness Study Area (WSA) managed by the BLM Ely District. According to a letter from the BLM District, and the crash site affects the functionality of the WSA. BLM has asked the USAF to remove the aircraft from the site. The crash site is in a high altitude area with rugged and steep terrain. The end state of the reclamation would be jointly determined by BLM and the USAF based upon BLM requirements and the safety and the welfare of the abatement team. Additionally, an initial crash recovery campsite was established within the WSA as shown on the attached map.

Staging for the clean up action would occur at another location outside the WSA and approximately 10 miles from the crash site. The staging area would be located at a private ranch along the Elgin Road near Farrier and Rox adjacent to the railroad tracks (N 36° 49.73' and W 114° 39.53'). The landowner has agreed to allow use of his property. The site is a completely disturbed sand and gravel borrow pit. The staging area would include the support campsite for the proposed action and would be in an area where the tractor-trailer transport will be able to maneuver easily. The site is not near any utilities; therefore, generators and operation essential support will be required during Phase II and Phase III.

The proposed action would be completed in the following five operational phases: Phase I, Site Assessment; Phase II, Site Abatement and Secondary Site Assessment, with a possible Follow-on Phase IV, Contracted Abatement and Site Reclamation, and Phase V, Follow-on Site Visit.

Phase I: The site assessment phase investigated the feasibility of the overall steps required to remove debris and reclaim the site in a safe manner. This step occurred on March 1, 2001.

Phase II: The site abatement phase would establish the staging area for personnel and equipment needed to pick up most of the debris at the crash site. The activities at the staging area include a campsite, mission preparation, briefings, equipment loading/unloading, and personnel support. A staging area would also be a landing site for the Nevada Army National Guard (ARNG). Containers known as "tri-walls" would be placed at or near the crash site. Equipment to be placed on the mountain would

be cleaned with compressed air at the staging area to prevent introduction of noxious weed seeds. A Chinook helicopter would airlift the large pieces out. The smaller pieces would be placed in mini-dumpsters or tarps and airlifted out. The debris would be taken to the staging area. This phase would continue until the debris is completely cleaned up or until the Officer In Charge (OIC) determines that continuing the effort would pose undue safety risks to personnel. At the end of this phase, airlift and support removal would remove any remaining debris and support equipment from the mountainside. At the staging area, the debris would be packaged, loaded on trucks, and shipped to NAFB Area III for storage.

Phase III: Secondary site assessment phase would revisit the site with AF and BLM representatives to determine if additional work is deemed necessary at the end of phase II. This phase would be started at the end of Phase II while crews are potentially available for additional activities associated with this phase. The activities during this phase would include the logistics planning of the remaining debris and site reclamation. Manure would be spread over the fuel spill area to enhance the natural remediation of the TPH at the site. Discussions between the BLM and the AF indicate that reseedling in the area would not be required. The campsite is in a wash and heavy rains have occurred since the site had been vacated. It is possible the runoff could have naturally removed evidence of the campsite. This site will also be visited during the site abatement phase to determine and implement reclamation efforts as required.

Phase IV: The contracted abatement phase would proceed if the above phases determine additional work is necessary to clean up debris at the site until a satisfactory resolution is met. The contractor would also implement the site reclamation that would include all remaining activities necessary to restore the areas to acceptable levels.

Phase V: A follow up visit by the AF and BLM to the crash site area will be programmed for completion in the summer of 2002. The purpose of this visit would be to investigate and remove any noxious weed establishment and to take soil samples to verify natural attenuation is progressing such that the area meets the State TPH standard.

- 2.1.2 Alternatives to the Proposed Action: Partial Removal - The proposed action would at least remove the larger pieces of debris. If the OIC determines continuing the site abatement phase should

be discontinued prior to complete clean up of the site is acceptable to the BLM, the BLM and the AF would develop alternatives to the level of acceptance. At this point, Phase IV would be established and implemented.

- 2.1.3 No Action Alternative: The no action alternative would leave the aircraft as is, where is and discontinue any further clean up activities. This alternative would violate the *Interim Management Policy for Lands Under Review (BLM H-8550-1)*.
- 2.1.4 Alternatives Considered but Not Carried Forward: One alternative discussed was grading an access road to the site to facilitate clean up efforts. The alternative was dismissed because it would be time-consuming, expensive and cause more environmental damage than either the proposed action or no action. Furthermore, it would essentially destroy the wilderness characteristics of the area.

### 3.0 Affected Environment and Environmental Consequences

- 3.1 Description of Project Area: The project area consists of three geographically distinct areas. The crash site is located on Mormon Mountain at an elevation of approximately 5900 feet. The site is steep and rocky. Vegetation is sparse at the crash location; a few juniper, pinion pines, and sagebrush surround the site. The original support site was located in a wash just within the WSA and all equipment has been removed from this site. The staging area would be located on a formerly used gravel pit that is completely disturbed. This site is approximately five miles south of the original support site. This site would not be located on the WSA.

### 3.2 Wilderness Values

- 3.2.1 The objective of the Wilderness Act of 1964 (PL 88-57) is “to assure that an increasing population accompanied by expanding settlement and growing mechanization, does not occupy and modify all areas within the United States.” The Act established a National Wilderness Preservation System to be “...administered for the use and enjoyment of the American people in such a manner as will leave them unimpaired for future use and enjoyment as wilderness ... to provide for the protection of these areas and the preservation of their wilderness character.” *Interim Management Policy for Lands Under Review (BLM H-8550-1)* requires that BLM manage Wilderness Study Areas as Wilderness Areas until Congress establishes the official wilderness designation for these areas.

- 3.2.2 The proposed action and alternatives would conduct clean up activities to a level as close as possible to the original condition or at least to a condition that is substantially unnoticeable. The crash had adverse impacts on the wilderness values since the wreckage imposes human influence on a WSA. The proposed action and alternatives would abate these impacts to an acceptable level to restore the wilderness values of the site.
- 3.2.3 The no action alternative would leave the aircraft of the mountain and would not improve the degraded wilderness values of the site.

### 3.3 Hazardous Materials

- 3.3.1 There are hazardous materials at the crash site as a result of the crash and subsequent burning and scattering of the F-16 debris. The hydrazine was removed during the initial crash recovery effort and is no longer on site. Petroleum products (POL) include JP-8 aviation fuel (up to 3,000 lbs), engine oil (17 pt.), and hydraulic fluid (5 gal). There has been an identified high amount of TPH contaminated soil at the crash site due to the leaking of POLs into the soil. Thorium Fluoride (Thorium 232) is installed on the outer window of the cockpit to enhance transmittance. Approximately 1.1 grams are installed. Inhalation or ingestion of particulates could pose potential problems. Graphite Epoxy composite fibers are located on the horizontal and vertical stabilizer. The burnt composite fibers may have become friable and pose a safety hazard through inhalation and ingestion of the particulates. Proper respiratory equipment must be worn when handling the material. The Americium 241 is a minor hazard due to the small amount (approx. 8 microcuries) used on the lantern pod.
- 3.3.2 The proposed action and alternatives would pick up debris. Picking up the large pieces of debris would remove most of the composite materials. To the extent possible, as much of the composite fiber material would be picked up. It is not possible to pick up every scrap of the material, but the remaining material should be sufficiently small enough to not pose short or long term risks to human health or the environment. Remediation options for the residual petroleum products at the site require BLM concurrence and NDEP approval. This step would not occur until the debris is removed to an acceptable level. Because of the remoteness of the site, soil removal by mechanical means is not possible. In recent other aircraft crashes, the accepted remediation method was natural attenuation, sometimes assisted with the placement of manure to increase microbe activity. It is expected that a similar remediation would be accepted for this site. The

thorium window and the americium pod would be removed during the site abatement phase. Removal of the aircraft debris and natural attenuation would reduce risks to humans and wildlife from exposure to hazardous materials.

All equipment and materials have been removed from the original support site; therefore there would be no impacts due to hazardous materials at this location. The new support site would have portable generators, vehicles, and crash debris. It is unlikely that a spill would occur at the staging area, drip pans, and other precautions would be used at the site. Any spills would be removed in accordance with applicable state, local, and federal regulations.

- 3.3.3 The no action alternative would leave all remaining debris at the crash site. The number of receptors would be limited to indigenous wildlife and the occasional hiker. Although neither wildlife nor human receptors exist in great numbers, receptors would be exposed to hazardous materials in the crash area.

#### 3.4 Air Quality

- 3.4.1 The crash site, original support site, and the staging area are located outside the Las Vegas Valley non-attainment area for carbon monoxide and particulate matter.
- 3.4.2 The helicopter flights and vehicular travel associated with the proposed action and alternatives would generate air pollutants. Both activities are short-term in nature and since they are outside of the non-attainment area, a formal conformity analysis is not required.
- 3.4.3 The no action alternative would not generate air pollutants.

#### 3.5 Special Status Species (Including Federally Listed or Proposed Threatened and Endangered Species and State Sensitive Species)

- 3.5.1 There are no federally listed threatened or endangered species in the crash site area. The desert tortoise habitat is generally in the lower elevations of the Mojave Desert. The crash site is nearly 6000 ft elevation, well above tortoise habitat. The original support site has been vacated and the staging area is completely disturbed.
- 3.5.2 The proposed action and alternatives would restore, to the extent possible, the crash site. The reclamation activities would abate most or all of the adverse impact caused by the aircraft crash.

- 3.5.3 The no action alternative would leave the residue in place and the area would not be restored to the original condition.

### 3.6 Cultural Resources

- 3.6.1 Section 106 of the National Historical Preservation Act requires that federal agencies consider impacts to cultural and archaeological resources due to their actions. The BLM has implemented a Programmatic Agreement with the State Historical Preservation office covering activities that are considered as casual use. The high altitude and rugged, steep terrain where the crash site is located makes this an unlikely location for any cultural resources. Helicopters will be used to transport personnel and equipment to the crash site, and remove debris from the site instead of building ground-disturbing access roads. Removal of debris and reclamation of the crash site is a low impact task posing little or no threat to any cultural resources that might be in the area.
- 3.6.2 The proposed action and alternatives would not involve new ground disturbances at the original campsite or the staging area. The activities at the crash site would be picking up large debris by helicopter and smaller debris by hand. Dumpsters and “tri-folds” would be placed on the mountainside to deposit the small and mid-size pieces into. Discussions with the BLM indicate these activities are consistent with casual use and are covered by the programmatic agreement. Also, the Areas of Potential Effect were previously disturbed by active wash cutting, a road, and the action of the crash, thus precluding additional research under Section 106. Therefore, there would be no impact to cultural resources.
- 3.6.3 The no action alternative would not impact cultural resources.

### 3.7 Visual Resource Management

- 3.7.1 The crash event had adverse impacts on visual resources within the WSA. All Wilderness Study Areas are considered to be Class 1 visual resource management areas. Class 1 is the most protected classification and states that no permanent visual disturbances are allowed within the classified area.
- 3.7.2 The proposed action and alternative would clean up debris from the site to restore it to a condition that would meet the qualification of a Class I visual resource management area.

- 3.7.3 The no action alternative would leave the aircraft on site and would not restore the visual resources to a class I condition.

### 3.8 Noxious Weeds and Invasive Species

- 3.8.1 Noxious weeds are specific species that have been listed by the Nevada Department of Agriculture. It is a legal term that identifies any plant designated by a Federal, State, or county government to be injurious to public health, agriculture, recreation, wildlife, or any public or private property. Invasive species may or may not be legally defined as noxious. Both noxious and invasive species can have long-term consequences for ecological structure, composition, and function, across large landscapes.
- 3.8.2 The proposed action and alternative would use compressed air to clean off dirt from the equipment that would go on the mountain. A possibility exists that workers could transport weed seeds on the mountain during clean up efforts. A follow-on site visit would investigate whether noxious weeds or invasive species are growing at the crash site. If found, the plants would be removed by approved methods.
- 3.8.3 The no action alternative would leave the aircraft on site and a follow-on site visit would not occur. It is unlikely that leaving the airplane wreckage on site would contribute to a significant noxious weed or invasive species problem. Flightline activities occur in a relatively seed-free environment and the fireball after the crash probably destroyed any seeds, which may have been transported by the aircraft.

### 3.9 Vegetation

- 3.9.1 Vegetation is sparse at the high altitude and rugged, steep terrain where the crash site is located. A few pinions and sagebrush were burnt as a result of the crash.
- 3.9.2 The proposed action and alternatives would not have any impacts on vegetation.
- 3.9.3 The no action alternative would have no impacts on vegetation.

### 3.10 Wildlife

- 3.10.1 Wildlife at the high altitude and rugged, steep terrain where the crash site is located could include bighorn sheep, coyotes, deer and



small rodents. No evidence of wildlife casualties was observed during the initial clean up of the site.

3.10.2 The proposed action and alternatives would clean up hazardous debris that could potentially be ingested by wildlife and abate the impacts to wildlife.

3.10.3 The no action alternative could impact wildlife if the hazardous material was left on the mountain and an animal inhaled or ingested some of the hazardous material. The wreckage itself would have no impacts on wildlife because in general, inert items introduced to a habitat area become part of the landscape from a wildlife perspective. Animals would eventually get used to the wreckage and have no long-term impact to wildlife.

4.0 Consultation and Coordination: This environmental assessment has been sent to the State Single Point of Contact at the State Clearinghouse. A press release has been prepared and delivered to the local Las Vegas newspapers. Agency coordination consisted of numerous meetings and telephone calls between the BLM and the Air Force. The proposed action was developed as a result of this coordination.

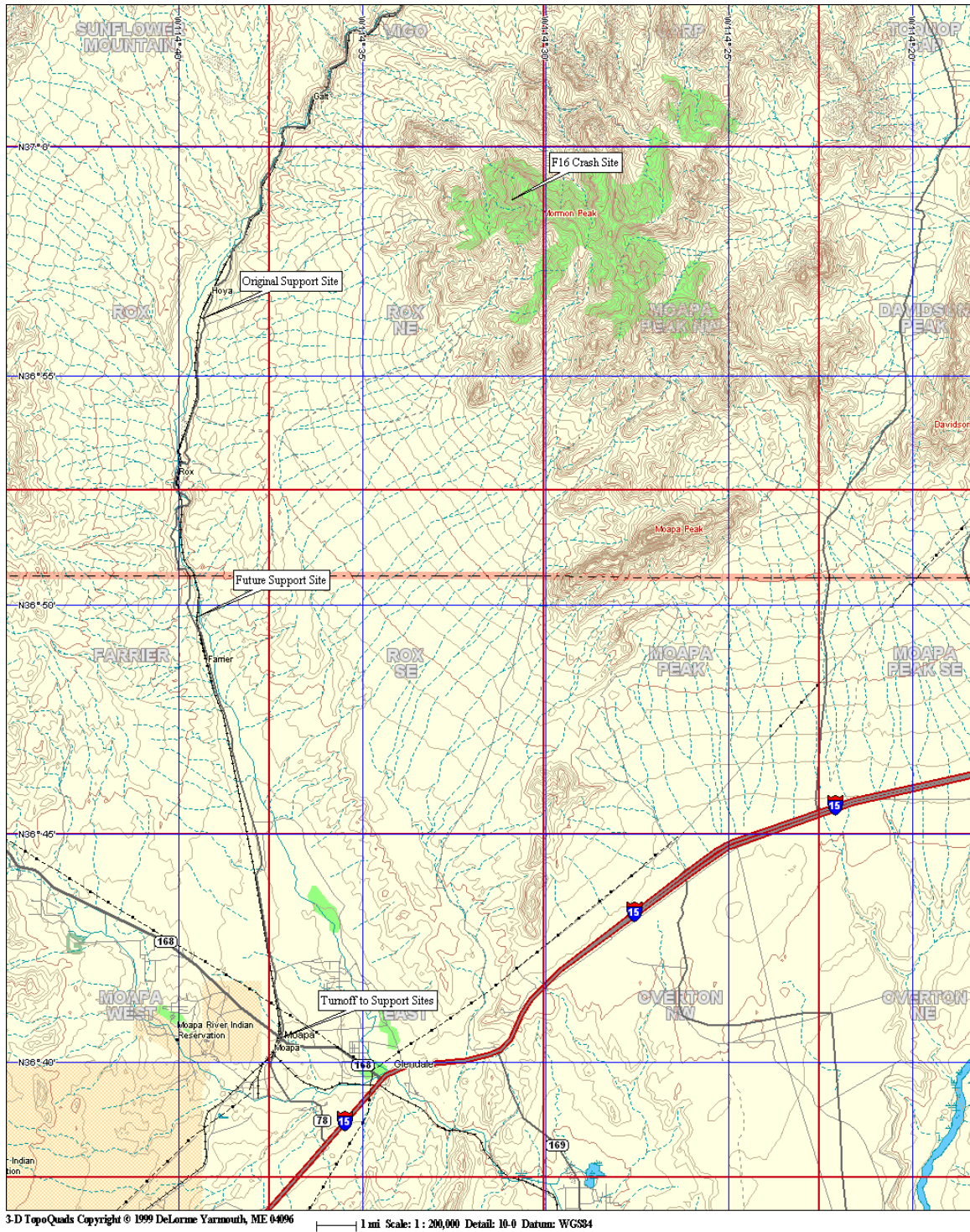


Figure 1: Site Map Showing Project Locations